

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 1 and 3-15 are pending; Claims 3-6, 8-10, 13 and 15 are withdrawn from consideration; Claims 1, 11, 12 and 14 are amended; Claim 2 is cancelled; and no claims are newly added herewith. It is respectfully submitted that no new matter is added by this amendment.

In the outstanding Office Action, Claims 1, 7 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,585,039 to Sagal et al. in view of U.S. Patent No. 5,309,986 to Itoh; Claim 2 was rejected under 35 U.S.C. § 103(a) as unpatentable over Sagal in view of Itoh and further in view of U.S. 2004/0194944 A1 to Hendricks et al.; and Claims 12 and 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over Sagal in view of Itoh and further in view of U.S. 2002/0195232 A1 to Katsui.

The applied art does not teach or suggest a container including a heat input section for receiving heat and a heat output section for radiating the heat, the container composed of a resin containing a thermoconductive material that includes carbon nanotubes, with the container having a groove configured to generate a capillary force, further a coolant in the container is transferred as a liquid from the heat output section to the heat input section by capillary force and the coolant is transferred as a gas from the heat input section to the heat output section by gas pressure, as claimed in Claim 1 and similarly recited in the remaining independent claims.

Instead, Sagal discloses a heat pipe 12 with a phase change media 28 contained therein that provides a centrally positioned heat transfer member that is overmolded with a layer of moldable thermally conductive material 14. As shown in Fig. 3, the heat pipe 22 includes contact pads 24 that are integrally molded to the heat pipe 20. The upper surface 26

of contact pad 24 is mated with the surface to be cooled on one end X and the surface to dissipate the heat on the other end Y. Sagal additionally discloses that additional fins or pins may be integrally molded on to the side of the heat pipe construction 10 of thermally conductive material to further enhance cooling and heat dissipation of the construction.

Itoh discloses that the heat pipe includes a container 1 that has a flat bottom wall 11 that is the heat receiving portion in a top wall 12 opposite to bottom wall 11. Liquid passage elements for removing condensed heat carrier are formed on the inner wall surfaces of the container 1. As shown in Fig. 3, a plurality of grooves 15 extend diagonally with respect to the longitudinal axis 16 and are formed on the inner surface of bottom wall 11. Similar grooves are formed in the top wall 12 as well as side walls 13 and 14. These grooves on the top and/or side walls may extend parallel to the central longitudinal axis. The liquid condensed in the container 1 flows along the grooves 15 by capillary action. As shown in Fig. 6, the heated bottom wall 11 heats the heat carrier 2 which is a liquid. The heat carrier 2 evaporates and turns to gas. Thus, the heat is radiated to the atmosphere.

The Office Action acknowledges that the above applied art does not teach or suggest having the thermoconductive material include carbon nanotubes. However, the Office Action asserts that Hendricks makes up for this deficiency and there would have been motivation to combine the applied art. Applicants respectfully disagree. Hendricks discloses cooling fluid that can be circulated through a coolant loop 16 in and/or around the heat source 14 so that the fluid absorbs heat from the heat source 14. A carbon nanotube heat-exchange system 10 includes a microchannel structure which may be extruded from metal. The carbon nanotube structure 26 is arranged in thermal contact with the microchannel structure 24 in order to dissipate the heat to a flowing medium surrounding the carbon nanotube composite structure. In turn, the nanotube structure 26 transfers the heat to an external medium such as air surrounding the carbon nanotube structure 26.

Accordingly, none of the applied are teaches or suggests having a phase changed and capillary forced heat pipe consist of resin with carbon nanotubes. Moreover, it is respectfully submitted that there is no basis in the teachings of either Sagal, Itoh, or Hendricks to support their applied combination. Certainly, the outstanding Office Action fails to cite to any specific teachings within either reference to support the applied combination. Therefore, it is respectfully submitted that the combination of Sagal, Itoh, and Hendricks is the result of hindsight reconstruction in view of the teachings of the present specification, and is improper. For example, if it had been obvious to one of ordinary skill in the art to modify the applied art to provide the claimed structure, then one of ordinary skill in the art would have done so to achieve these advantages. However, the applied art does not provide such disclosures.

Further, when an obviousness determination is based on multiple prior art references, there must be a showing by the patent examiner of some "teaching, suggestion, or reason" to combine the references. Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) (also noting that the "absence of such a suggestion to combine is dispositive in an obviousness determination"). Whether motivation to combine the references is shown is a question of fact. See In re Dembiczak, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Evidence of a suggestion, teaching, or motivation to combine prior art references may flow, *inter alia*, from the references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. Although a reference need not expressly teach that the disclosure contained therein should be combined with another, see Motorola, Inc. v. Interdigital Tech. Corp., 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997), the showing of combinability, in whatever form, must nevertheless be "clear and particular." Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. "Trade-offs often concern what is feasible, not what is, on balance, desirable. Motivation to

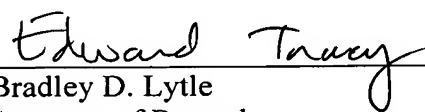
combine requires the latter." Winner International Royalty Corp. v. Wang, 53 USPQ2d 1580, 1587 (Fed. Cir. 2000). Interpreting the Supreme Court's decision in Dickinson v. Zurko, 50 USPQ2d 1930 (1999) regarding the standard of review in patent matters, the CAFC determined that when upholding a rejection of a claimed invention in an appeal, the CAFC must find that the decision by the USPTO Board of Appeals and Interferences is supported by "substantial evidence," In re Gartside, 53 USPQ2d 1769 (Fed. Cir. 2000). Accordingly, for a proper rejection based on a combination of references, the rejection must be supported by evidence that the motivation to combine references was not merely feasible, but desirable.

Consequently, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. A Notice of Allowance for Claims 1, 7, 11, 12, and 14 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below-listed telephone number.

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